

Assistant/Associate Professor Mackay School of Mines University of Nevada-Reno

The Department of Geological Sciences invites applications for the tenure track academic year position of assistant or associate professor of Geology to teach undergraduate and graduate courses (M.S. and Ph.D.). We are seeking a outstanding person with potential for teaching, establishing new laboratories and conducting and supervising research in the Basin and Range and adjoining Provinces. Publishable research will be expected. Areas of expertise within geology which will receive favorable consideration are structural geology, sedimentology, stratigraphy and carbonate petrology.

The position will be filled in either January or August 1982, depending on the availability of candidates. The Ph.D. or equivalent degree is required. Salary and rank will depend on education and experience. Candidates should send a letter of application, list of publications, statement of teaching and research interests and transcripts and should arrange for at least three letters of reference to be sent to the Department. Closing date for application is November 15, 1981. Applicants may be sent to: Dr. L. C. Hsu, Chairman, Faculty Search Committee, Department of Geological Sciences, Mackay School of Mines, University of Nevada, Reno, NV 89557. University of Nevada is EOE/AAE.

University of California, Santa Barbara/Assistant Professor of Geophysics. Tenure track position available July 1, 1982. Ph.D. required prior to appointment. Strong commitment to research and teaching and good background in computer and mathematical quantitative skills required. Major area of specialization should be cartography with other research and teaching interests in human geography. Submit resume, bibliography, and names of three references to: Dr. Reginald G. Gollidge, Chairman, Department of Geophysics, University of California, Santa Barbara, CA 93106. Closing date: December 31, 1981. Equal opportunity/affirmative action employer.

Faculty Positions: University of Petroleum & Minerals, Dhahran, Saudi Arabia. The Department of Earth Sciences will have faculty positions open for the academic year 1982-83, starting 1 September 1982 in the following areas:

- a. Hydrogeology
- b. Petroleum Geology
- c. Geochemistry
- d. Petrogeology
- e. Geophysics

Minimum qualifications include Ph.D. degree plus field/industry teaching experience. Faculty will be involved in both teaching and research. Ability to teach geologic field courses is particularly desired. Good research facilities are available and specialized equipment for approved research projects may be acquired. Current research includes sedimentary basins, subsurface structural, geotechnical properties of local soil and rock types. It also includes micropaleontological-microfossils analysis, stratigraphical analysis of both surface and subsurface sections, computerized bibliographies and geologic data banks, theoretical and applied studies of seismic surface waves, rock magnetism and paleomagnetism.

Language of instruction is English. Minimum regular contract for two years, renewable. Competitive salaries and allowances. Air conditioned and furnished housing provided. Free air transportation to and from Dhahran each year. Attractive educational assistance grants for school-age dependent children. Air earned income without Saudi taxes. Ten months duty each year with two months vacation with salary. There is also possibility of selection for university's ongoing summer program with good additional compensation.

Apply with complete resume on academic, professional and personal data, list of references, publications and research details, with copies of degrees and/or transcripts, including home and office addresses and telephone numbers to: University of Petroleum & Minerals, Dhahran Office, 2223 West Loop South, Suite 410, Houston, Texas 77027.

Position in Reflection Seismology/Rice University, Houston, Texas. The Department of Geology plans to expand its geophysical program. Emphasis will be on reflection seismology. At this time applications are for the first of two open faculty positions. The successful applicant will help in the search for and selection of the second faculty member.

Your main responsibility will be to lead our department into the area of modern reflection seismology. Your main teaching and research interests should be in the acquisition and processing of reflection seismic data. You should also help in developing rigorous undergraduate and graduate curricula, which are supported by the traditional strength of the Math Sciences, Physics, and Electrical Engineering Departments at Rice. Enthusiasm to work with and undertake some joint projects with our geologists is essential.

Our plans are to acquire a computer system configured for high quality data processing. Substantial seed money for this facility is already in hand. Creative cooperation with the oil and geophysical industry in Houston, including a reasonable amount of consulting, is encouraged. Successful candidates will be commensurate with qualifications and experience. Please send your curriculum vitae, a summary of experience in seismic processing, a statement of research interests, and names of three or more references to Dr. A. W. Bally, Chairman, Department of Geology, Rice University, P.O. Box 1892, Houston, Texas 77001. Application deadline—October 1, 1981.

Rice is an equal opportunity employer.

Atmospheric Scientist/Group Head. Senior staff scientist position available immediately at the NAIC's Arecibo Observatory. The successful applicant will be appointed as Head of the Atmospheric Sciences Group and will be expected to lead that group and to perform independent research using the Arecibo facilities. A Ph.D. degree in atmospheric or physical sciences or radar engineering and a record of solid research accomplishments are required. Experience with radar studies of the stratosphere, mesosphere, and ionosphere or with HF modifications of the ionosphere is desirable. Salary and rank will be commensurate with qualifications and experience. Please send resume and names of at least three references to: Dr. Harold D. Gault, Acting Director, NAIC Observatory, Space Sciences Building, Cornell University, Ithaca, New York 14853. NAIC-Cornell University is EOE/AAE.

Petroleum Geophysicist/New Zealand Geological Survey. New Zealand is undergoing major expansion of its energy resources investigations including prospecting for hydrocarbons. The Department of Scientific and Industrial Research, the principle Government R & D Agency, and solvent to government and industry in science and technology, has a vacancy in its Geological Survey for a seismic interpreter. The position, in the Petroleum and Basin Studies Section requires a person with a sound geological background primarily for regional analysis for the Basin Studies Programme.

Qualifications: A good 4 year bachelor's degree or higher, and at least 3 years petroleum exploration experience, are preferred. Salary: A salary of up to NZ\$23,500 per annum is offered for this position, depending on qualifications and experience. Further information, application forms etc., may be obtained from the Ambassador Extraordinary and Plenipotentiary, New Zealand Embassy, Washington D.C. Applicants should quote Vacancy No. 2557 and forward applications, accompanied by a resume, to: The Ambassador Extraordinary and Plenipotentiary, New Zealand Embassy, Washington D.C. 20008. Closing date for applications November 3, 1981.

City University of New York (Brooklyn College) Faculty Positions. The Department of Geology anticipates filling several tenure track positions at Full Professor level. (Salary range up to \$43,400). Highly qualified individuals will be considered for distinguished appointments at an additional \$5,000.

While candidates who have distinguished themselves in any field are welcome to contact us, we are particularly interested in openings in energy resources (coal/petroleum), exploration geophysics, environmental geology or hydrogeology, coastal sedimentology, economic geology.

Successful applicants will be required to institute an active research program, supervise Master's and Ph.D. theses. Nominations and applications with current vitae should be sent to: Dr. S. Shattuck, Chairman, Dept. of Geology, Brooklyn College of City University of New York, Brooklyn, New York 11210. Position open until filled. Brooklyn College, CUNY, is an affirmative action equal opportunity employer.

Senior Faculty Position: Meteorology. Applications and nominations are invited for a senior faculty position in meteorology at the University of Utah. Eligible applicant will also be considered for chairperson of the department. Candidates must possess a Ph.D. in meteorology or a related discipline. Applicants should have teaching and research experience and be interested in participating in both the graduate and undergraduate programs. Applicants should submit curriculum vitae and names of three professional references to: Dr. Jan Paegle, Search Committee, Department of Meteorology, University of Utah, Salt Lake City, Utah 84112.

Deadline for applications November 30, 1981. The University of Utah is an affirmative action equal opportunity employer.

California Space Institute, University of California, Santa Barbara Research position in Remote Sensing. Basic and applied research in some combination of remote sensing of coastal zones, land use/land cover, natural and agricultural vegetation, and soil moisture with skills in information systems, automated image analysis, and quantitative modeling. We seek an independent worker with the goal of deepening and widening existing work in these areas on this campus. Ph.D. preferred. Rank and salary commensurate with experience. Closing date: November 30, 1981. Submit resume; a brief account of research interests; and names of three professional references to: Dr. David S. Simonett, Department of Geophysics, University of California, Santa Barbara, California, 93106.

The University of California, Santa Barbara, is an equal opportunity/Affirmative Action employer.

Hydrogeologists: Escape to Wisconsin. Residual Management Technology is a consulting firm specializing in the waste management field. Headquartered in Madison, Wisconsin, we currently work in more than 20 states. If you are interested in waste management challenges facing the U.S. today—interested in locating minerals away from a major university—minerals away from great fishing and outdoor recreation, then let us get to know you. Our rapid growth has created openings in hydrogeology. Ideal candidates will have M.S. degree and 1-2 years experience in conducting hydrogeologic investigations and in conducting hydrogeologic investigations and communications. Industrial experience a plus. Responsibilities include design of field investigation program, field work, data analysis, report writing, and work with industrial and public sector clients. Be a team member working with engineers, chemists, and other technical personnel on ground water pollution projects, design of solid waste landfills, and hazardous waste landfills, and hazardous waste disposal plans. To be considered for these immediate openings, send a letter with salary history, professional and personal goals, and resume to Chief Hydrogeologist, David Nichols, Residual Management Technology, 1406 E. Washington Avenue, Suite 124, Madison, Wisconsin 53703. AMEOE.

Research Associate in Geochemistry/University of Chicago. Post-doctoral position involving extraction of micro-samples from meteorites under clean conditions and analysis for major and trace elements by instrumental and radiochemical neutron activation. Goal is to investigate behavior of the elements during condensation of the solar system.

Experience in geological samples an asset, in meteorites a definite plus and in radiochemistry a necessity. Send vita and names of two references to Professor Lawrence Grossman, Department of

Geophysical Sciences and Enrico Fermi Institute, University of Chicago, Chicago, Illinois 60637. The University of Chicago is an affirmative action/equal opportunity employer.

SERVICES
Coal Deposits. If you are financing, planning, exploring, drilling, or digging in connection with any form of energy, you need this complete, up-to-date book about the world's coal deposits. Includes production and reserves for mines. Hardcover, 6 x 9 inches, 590 pages. Table of contents, drawings, indexes, references. 1980. \$156. Tatch Associates, Thunder Road, Sudbury, MA 01776, USA.

COURSES
MSA Amphiboles Short Course. The Mineralogical Society of America will sponsor a Short Course on Amphiboles and Other Hydrous Pyroxenes at the Mayfield Retreat Center in Edinburg, Kentucky, October 29 to November 1, 1981, before the MSA/GSA Annual Meeting in Cincinnati, Ohio. Instructional Staff will be:

J. B. Thompson, Jr. (Harvard)—Polyosmium and polyphosphorus in pyroxenes and amphiboles.
F. C. Hawthorne (Marquette)—Crystal chemistry of amphiboles.
S. Ghose (Univ. Washington)—Subsolidus reactions of amphiboles.
P. Robinson (Univ. Massachusetts)—Amphiboles of metamorphic rocks.
M. C. Gilbert (VPI)—Phase equilibria and amphiboles of igneous rocks.
D. B. Voblen (Johns Hopkins) (Convenor and Editor)—Wide-chain pyroxenes.
T. Zolli (Univ. Minnesota)—Mineralogy of amphibole asbestos.
M. Ross (USGS)—Geological occurrence of amphibole asbestos.

Contact: MSA, 2000 Florida Avenue, N.W., Washington, D.C. 20008. Telephone: 202/462-8913. Registration Deadline: October 1, 1981.

STUDENT OPPORTUNITIES
Research-Cum-Teaching Assistantships. Available in Space Physics and Atmospheric Science Programs. Stipend during academic year is \$777 per month and twice that rate during summer. Write to: G. G. Slyke, Head Space Physics and Atmospheric Science Program, Geophysical Institute, University of Alaska, Fairbanks, AK 99701 or call (907) 478-7058.

Graduate Research Assistantships in Civil Engineering. The Department of Civil Engineering at Princeton University invites applications for graduate study and research in the areas of structures and mechanics, transportation, water resources and engineering management systems leading to M.S.E. and Ph.D. degrees. Including tuition, annual research stipends range from \$14,000 to \$15,000 and are offered to all admitted students requesting support. For details and application write: Ahmet S. Cakmak, Director of Graduate Studies, Department of Civil Engineering, Princeton University, Princeton, NJ 08544.

Graduate Study in Space Physics and Astronomy. Rice University is pleased to offer fellowships for entering graduate students in the Department of Space Physics and Astronomy. Exciting research is underway in the fields of theoretical and experimental space plasma physics, magnetospheres of the earth and planets, atmospheric and ionospheric physics, laboratory studies of Rydberg atoms, laser research, space solar power studies, and astronomy and astrophysics.

The fellowships for first year students presently are \$4645 tuition for 9 months, plus tuition, and involve only 4-5 hours tutoring, grading, or instructing per week for four semesters. Research assistantships for summers and subsequent years are generally available at \$550 per month. Students with exceptional undergraduate records and GRE scores are eligible for an additional \$1000 Presidential Recognition Award. Releases are expected for next year.

Address inquiries to: Dr. Patricia Reiff, Assistant Chairman, Department of Space Physics and Astronomy, Rice University, 77001.

Union: President-Elect
signed by at least 1% of the voting members of the Union or section, as the case may be, and such petitions must be received by the General Secretary by November 30, 1981.

The number of names required to make a petition nomination is as follows: Union, 131; Geodesy, 8; Geomagnetism and Paleomagnetism, 7; Hydrology, 23; Meteorology, 10; Oceanography, 18; Planology, 6; Seismology, 13; Solar-Planetary Relationships, 15; Tectonophysics, 11; and Volcanology, Geochemistry, and Petrology, 12.

Union: President-Elect
Members of AGU are invited to submit additional nominees by petition in accordance with the bylaws. Each petition must be

Charles L. Drake. A member of AGU since 1950; 56 years old, Dean of graduate studies, associate dean of sciences division,

professor of earth sciences, Dartmouth College. Major interests: solid earth geophysics and tectonics. B.S.E. in geological engineering, Princeton, 1948; Ph.D. in geology, Columbia, 1958. Columbia faculty until 1969, at that time professor and chairman; Department of Geology, Dartmouth College since 1969. Fellow: AGU, GSA, AAAS, RAS; member: AAPG, SEG, SSA, Sigma Xi, MTS, AGU. Has been president GSA, on council of AAAS, on research committee of AAPG, on governing board of AGI. Served on many committees, chaired Office of Earth Sciences, U.S. Geodynamics Committee, Committee on Geodesy, U.S. National Committee on Geology, Geophysics Study Committee, all of NAS-NRC, Past president, International Commission on Geodynamics, IAGU, 75 publications, 14 printed by AGU. Distinguished Lecturer: AAAS, AAPG; Honorary Member, Geological Society of France. Served as member of AGU Committee on International Participation; coeditor AGU Monograph 12; editor, *Geodynamics: Progress and Prospects*.

Petr Vaníček. Member since 1970; age 45. Professor of geodesy, University of Toronto (Einhad College) and University of New Brunswick, Fredericton. Current research interests: geodynamics, earth gravity field, mathematical techniques of geodesy, application of statistics in geodesy, applications of extraterrestrial methods to geodesy, physical oceanography, theoretical elasticity. Received dipl. ing. degree in geodesy (1959) in Czech Technical University in Prague and Ph.D. in mathematical physics (1968) in Czechoslovak Academy of Sciences in Prague. Worked as a surveyor at Prague Institute of Surveying and Cartography (1959-1963), consultant in numerical analysis and computer applications at Faculty of Technical and Nuclear Physics of Czech Technical University (1963-1967), research fellow and later senior scientific officer at Institute of Oceanography, Bidston, U.K. (1967-1969), NRC of Canada postdoctoral fellow in Surveys and Mapping Branch of EMR, Ottawa (1969-1971), associate and full professor of geodesy at UNB (1971-1981), visiting scientist, USGS Center for Earthquake Research, Menlo Park, California (1977). Member of executive CGU, fellow of GAC, Sigma Xi, member of CIS, NYAS, SVU, member of Canadian National Committee for IUGG. Author of 110 books and papers, including three papers in *Eos* (e.g., "The Map of Contemporary Vertical Crustal Movements in Canada," co-authored D. Nagy) and one in *Reviews of Geophysics and Space Physics* ("Geoidic leveling and its applications," coauthored by R. O. Castle and E. L. Balazs). Coeditor of *Manuscripta Geodastica*. Member of IAG working group 1:21, 1:41, 4:80, 5:83, Canadian representative on IUGG Commission on Recent Crustal Movements. Honorary fellow (1967-1968), NRC (Canada) Postdoctoral Fellowship (1968-1971), CNPq (Brazil) Visiting Professorships (summers 1975, 76, 79), NRC (U.S.A.) Senior Visiting Scientist (1978), University of Stuttgart (summer 1981), Visiting Professorship (summer 1981), University of São Paulo (Brazil) Visiting Professorship (summer 1981). Since 1978 has served on AGU GMP Committee.

Robert F. Brammer. AGU member, 1977. Born in Washington, D.C., 1946. Currently, director of the Physical Sciences Division at TASC, managing 50 professionals and several programs in geodesy, geomagnetism, oceanography, and hydrologic forecasting. His geodesy work includes principal investigator studies for both the GEOS-3 and SEASAT altimeters (high-resolution geoids and sea-surface topography), the design and development of a new computer system for the DoD Gravity Library, and analysis of gravity effects on satellite and strategic systems. Other scientific interests include solid-state oceanography and geomagnetism. He is a principal investigator for MAGSAT, developing signal processing methods for magnetic anomaly mapping and for tectonic interpretation, using both MAGSAT and satellite altimeter data. Brammer received a B.S. from the University of Michigan in 1968 and an M.A. and Ph.D. from the University of Maryland in 1970 and 1972, respectively. Before joining TASC, he was with NASA/GSFC working on Apollo and Skylab. He is also a member of the SEG, the AMS, SIAM, and the IEEE. He has published more than a dozen technical papers, including GEOS-3 results in JGR and SEASAT results in *Geophysics Research Letters*. He is a member of Phi Kappa Phi, Phi Kappa Psi, a Woodrow Wilson Fellow, and a recipient of three National Science Foundation grants for research in mathematics. Currently, he is serving as chairman of the External Liaison Committee for the Geodesy Section of the AGU, arranging for joint conference sessions with other professional societies.

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positions since 1974, primarily at California Institute of Technology and at the University of Wyoming. Her recent work has centered around the delineation of rhyolite patterns in the Mesozoic and use of these for correlation purposes and the investigation of the source and characteristics of magnetization in the ocean floor. She has authored or coauthored 24 scientific publications and has presented 19 papers at national meetings. Among other contributions, this work has produced an apparent polar wander path for North America during the Jurassic and has demonstrated that a long period of constant geomagnetic field polarity did not characterize that time. Steiner is currently serving as AGU Fall Program chairman for geomagnetism.

Hydrology: President-Elect



R. Allen Freeze. Age 42; a member of the Hydrology Section of AGU since 1970. He is currently a professor in the Department of Geological Sciences and an associate dean in the Faculty of Graduate Studies at the University of British Columbia in Vancouver, Canada. He obtained his B.Sc. in geological engineering from Queens University in 1961 and his Ph.D. in civil engineering from the University of California at Berkeley in 1966. Before joining UBC, he was a research scientist with the Hydrologic Sciences Division of the Canada Inland Waters Branch in Calgary, Alberta, and a research staff member at the IBM Thomas J. Watson Research Center in Yorktown Heights, N.Y. He is the author of over 50 technical publications in the fields of hydrology, hydrogeology, soil physics, and engineering seepage. He is coauthor (with J. A. Cherry) of the textbook, *Groundwater*, published in 1979. In addition to AGU, he is a member of the Geological Society of America, the Canadian Geotechnical Society, and the Association of Professional Engineers of British Columbia. Freeze was awarded the Horton Award by AGU in 1970 (with J. A. Banner) and in 1972 for his papers in *Water Resources Research* on "The Mechanism of Natural Groundwater Recharge and Discharge" and "The Role of Subsurface Flow in Generating Surface Runoff." The latter paper also resulted in the 1974 Meinzer Award from the Geological Society of America. Freeze received the Macelwane Award from AGU in 1972. He served as editor of *Water Resources Research* during the period 1976-1980.



Donald R. Nielsen. Age 49; a member of AGU since 1958. He is professor of soil and water science in the Department of Land, Air, and Water Resources, University of California, Davis. His areas of scientific interest include hydrology, water and solute behavior in the vadose zone, and soil physics. He holds B.S. (1953) and M.S. (1954) degrees from the University of Arizona and the Ph.D. (1958) from Iowa State University. Nielsen has been employed by the University of California since 1958 and has served as associate dean, director of the Kearney Foundation, and chair of Land, Air and Water Resources. He has served as a consultant for the U.S. Army, NASA, State of California Department of Water Resources, USEPA, FAO/IAEA, USAID, and USDA. He is president of the Soil Physics Commission of the International Soil Science Society, associate editor of the *British Journal of Soil Science*, and has served on boards of directors of the Soil Science Society of America and American Society of Agronomy. Presently, he is on the Panel of Remote Sensing for Water Resources of the Space Applications Board of NRC and has served on panels of the Geophysics Board and on Water Resources Review Committee of the Food and Agriculture Board of the National Academy of Sciences. He has authored or coauthored more than 150 scientific articles and edited three books. He is a fellow of the Soil Science Society of America and of the American Society of Agronomy. He is also a member of Sigma Xi, Phi Kappa Phi, Gamma Sigma Delta, Phi Lambda Upsilon, and Pi Mu Epsilon. He has been a senior postdoctoral fellow of NSF and an invitational symposium speaker in more than 15 countries. Nielsen has served on Soil Moisture Program committees of AGU, and since 1970, has served as associate editor of *Water Resources Research*.

Hydrology: Secretary



Thomas Maddock III. Age 42; a member of AGU since 1988. He is currently professor of hydrology and water resources at the University of Arizona and specializes in groundwater management. Maddock received an undergraduate degree from the University of Houston and his masters and Ph.D. degrees from Harvard under the Harvard Water Program. Before leaving to join academia, he worked for the U.S. Geological Survey as a member of its Water Resources Division System Analysis Group and Groundwater Branch. Maddock was an associate editor for *Water Resources Research* and was chairman of the AGU Hydrology Division Committee on Water Resource Systems. A member of AWRA, Sigma Xi, and an honorary physics society; and of the ASCE Committee for the Inverse Problem, he is currently an editor of the AGU Monograph Series.



Eric F. Wood. Age 33; a member of AGU since 1971. He is an assistant professor of civil engineering and director of the Water Resources Program at Princeton University. His areas of scientific interest include stochastic hydrology, forecasting, and water resources planning and optimization. He holds a B.A. Sc. (honors, 1970) from the University of British Columbia, and S.M. (1972), C.E. (1973), and Sc.D. (1974) from the Massachusetts Institute of Technology. Wood has been at Princeton since 1976. From 1974-1976 he was a research scholar at the International Institute for Applied Systems Analysis (IIASA) in Laxenburg, Austria. He participated in the National Science Foundation working group on flood hazard mitigation. Wood has authored or coauthored more than 35 scientific articles and publications and has edited one book entitled *Real-Time Forecasting of Water Resource Systems* (Pergamon, 1980). He was awarded the Horton Award for his paper "An Analysis of the Effects of Parameter Uncertainty in Deterministic Hydrologic Models" (*WRR*, 7(2), 925-932). He has served on the AGU Data Network Design Committee since 1977, has been an associate editor of *Water Resources Research* from 1977, and is on the editorial board of the AGU Water Resources Monograph Series.

Meteorology: President-Elect



W. Lawrence Gates. Age 52; a member of AGU since 1958. He is presently professor and chairman of the Department of Atmospheric Sciences at Oregon State University and also founder and director of the OSU Climatic Research Institute. His areas of current scientific interest are climate dynamics, paleoclimatology, the general circulation, and atmospheric modeling. He holds the degrees of B.S. (1950), B.M. (1951), and Sc.D. (1955), all from the Massachusetts Institute of Technology. Gates has been employed by the Air Force Cambridge Research Laboratory (1953-57), where he directed the numerical weather prediction project; the Department of Meteorology at UCLA (1957-68), where he was assistant and then associate professor; and the Rand Corporation (1968-76), where he directed the climate program. He has been at OSU since 1976. Gates has been a member of numerous committees and panels of the American Meteorological Society, the Environmental Protection Agency, the National Aeronautics and Space Administration, the National Academy of Sciences, the University Corporation for Atmospheric Research, and the World Meteorological Organization; his present activities include membership in the Working Group on Numerical Experimentation of the WMO's World Climate Research

Program and the Climate Research Committee of the National Academy of Sciences' Climate Research Board. He has authored or coauthored approximately 40 published articles of which five are in AGU journals, and he has written more than 45 other technical reports. In 1960, he was elected a fellow of the American Meteorological Society, and in 1961 he became a fellow of the American Association for the Advancement of Science.



Fred D. White. Age 63 and a member of AGU since 1960. He was elected a fellow of AGU in 1967. He is currently employed as executive secretary of the National Research Council's Committee on Atmospheric Sciences and by the American Meteorological Society as editor of its *AMS NEWSLETTER*. He holds an A.B. (1941) from Miami University and a Ph.D. (1963) from the University of Wisconsin. While served with the U.S. Air Force from 1941-1963 and is a colonel in the USAF Reserve. He worked with the U.S. Weather Bureau from 1946-1958 and with the National Science Foundation from 1958-1976. He is a member of Sigma Xi, American Meteorological Society (has served on the Council, chairman of the nominating committee, and chairman of the Washington Chapter); and AAAS (has served as chairman of the Atmospheric and Hydrospheric Sciences Section and on the nominating committee). While served on AGU Statutes and By-Laws Committee from 1964-1972.

Meteorology: Secretary



Ronald L. Leavelle. Age 46; became a member of the AGU in 1962. He is director of the Atmospheric Programs Office in the National Oceanic and Atmospheric Administration's Office of Research and Development. His main areas of scientific interest are numerical modeling on the mesoscale, cloud physics, and weather modification. He received a B.A. (1954) from the University of New Hampshire, an M.S. (1958) from Florida State University, and the Ph.D. (1966) from the Pennsylvania State University. Leavelle began his career as meteorologist-in-charge of the Mt. Washington Observatory in New Hampshire (1957-59). He served on the faculty of the meteorology department at the University of Hawaii, where he was also a member of the Hawaii Institute of Geophysics, from 1959 to 1968. He was an associate professor at Pennsylvania State University from 1968 to 1973, including a year on Inter-governmental Personnel Act assignment to the National Science Foundation as associate program manager for meteorology. He has been with NOAA since 1973. Leavelle is a fellow of the American Meteorological Society, which he has served as chairman of the Committees on Cloud Physics, Awards, and Weather Modification. He is also a fellow of the AAAS and a member of the Weather Modification Association, Sigma Xi, and Phi Beta Kappa. He serves on advisory committees to the National Center for Atmospheric Research and the World Meteorological Organization. He has authored or coauthored 18 articles in journals or books and has been on program committees for several national and international conferences.



Ronald C. Taylor. Age 48; member of AGU since 1958. National Science Foundation, Atmospheric Research Section/Meteorology Program, Washington, D.C. Born, Port Huron, Michigan, 1932. B.A., 1959, University of California, Los Angeles; Ph.D., 1968, University of Hawaii. Assistant professor of meteorology, Saint Louis University, 1968-1969. University of Hawaii, 1969; research contract, U.S. Navy Weather Research Facility, Norfolk, Virginia, 1969; graduate program in meteorology, University of Maryland, 1975. Member, AAAS, American Meteorological

Society, Meteorological Society of Japan. Tropical meteorology air-sea interaction; polar meteorology, Antarctic, synoptic, and physical. Served as secretary of the AGU Meteorology Section 1978-1980.

Oceanography: President-Elect



Donald V. Hansen. Age 50 and a member of AGU since 1983. He holds degrees in physics (B.S., 1954) and oceanography (M.S., 1961; Ph.D. 1964) from the University of Washington, Seattle. He served on active duty in USAR as meteorological officer and artillery officer during 1954-56. He subsequently worked as an engineer in testing and evaluation for Boeing Airplane Company and as a science teacher with the Seattle public schools. Following his graduate education he held a position as research assistant professor at the University of Washington before accepting a position as research oceanographer with the U.S. Department of Commerce. He has been director of the Physical Oceanography Laboratory, Atlantic Oceanographic and Meteorological Laboratories (AOML) since 1969, and additionally was acting director, AOML, during 1978-80. He is a member also of Sigma Xi, ASLO, AAAS, Florida Academy of Science, and International Oceanographic Foundation and holds an adjunct faculty appointment at the University of Miami. Hansen has over 40 publications in oceanography, two of which appeared in AGU journals, and has made numerous presentations at and chaired scientific sessions at the AGU meetings. He has received NOAA awards for distinguished scientific authorship in 1971, 1975, 1977, and 1980. He has also received other NOAA awards. He served as associate editor, *Journal of Geophysical Research*, during 1968-69, and is presently a member of the AGU Committee on Coastal and Estuarine Regimes.



Joseph L. Reid. Age 58; B.A., University of Texas (1942), M.S., Scripps (1951); a member of AGU since 1950 and a fellow since 1975. Professor of physical oceanography at the Scripps Institution of Oceanography, where he has worked since 1951. He served as president of the Oceanography Section of AGU 1972-1974 and on the Fellows Committee 1979-1980. He has authored or coauthored over 60 articles in the refereed journals (13 in AGU publications), and he has served as associate editor to several journals, edited several books, and contributed several reviews. His area of interest is the circulation of the world ocean, the characteristics of the waters and the seas and manner of their formation. He has carried out several oceanographic expeditions in the Pacific, Atlantic, and Indian oceans, including a study of the Northwest Pacific, Bering and Okhotsk seas in January-March 1968. In 1965 he proposed and coordinated the NORPAC Expedition, a program for collecting oceanographic observations over the entire North Pacific north of 20°N and carried out by 19 ships of the United States, Japan, and Canada. He is one of the originators of the GEOSCEP expeditions. He has served on various advisory panels to N.S.F. and other federal agencies, and S.C.A.R. He is a member of A.S.L.O. and A.A.A.S. Representative publication: 1961, On the Mid-Depth Circulation of the World Ocean, Chapter 3, in *Evolution of Physical Oceanography* (B. A. Warren and C. Wunsch, editors), The MIT Press, pp. 70-111.

Oceanography: Secretary



Peter George Brower. A senior scientist in the Chemical Oceanography Department at the Woods Hole Oceanographic Institution.

He has been a member of the American Geophysical Union since 1979. Born in December 1914, he earned both his undergraduate and graduate degrees at Liverpool University, England, in 1932 and 1937, respectively. He came to WHOI as an assistant scientist in 1937, was appointed an associate scientist in 1971, and a senior scientist in 1978. His professional activities include memberships in the American Chemical Society, the Geochemical Society, the American Association for the Advancement of Science, and the American Geophysical Union. His scientific interests include the analytical chemistry of seawater, trace element geochemistry, the chemistry of marine particulate matter, the physical properties of seawater, and the oceanic carbon dioxide system. Among his 48 publications and nine technical reports are the following: Brewer, P. G., and A. Bradshaw, 1975, The effect of seasonal composition of seawater on salinity and density, *J. Mar. Res.*, 33, 157-175; Brewer, P. G., 1978, Direct observation of the oceanic CO₂ increase, *Geophys. Res. Lett.*, 5, 997-1000; Brewer, P. G., Y. Nozaki, D. W. Spencer, and A. P. Fleer, 1980, Sediment trap experiments in the deep North Atlantic: isotopic and elemental fluxes, *J. Mar. Res.*, 38(4), 703-728; Ballistreri, L., P. G. Brewer, and J. W. Murray, 1980, Scavenging residence times of trace metals and surface chemistry of sinking particles in the deep ocean, *Deep-Sea Res.*, submitted.



J. Dungan Smith. Age 42; professor and chairman of the Geophysics Program at the University of Washington, also professor in the Departments of Oceanography and Geological Sciences; joined AGU in 1965. Scientific interests: estuarine and coastal physical oceanography, turbulent boundary layer mechanics, physics of marine and fluvial sediment transport. B.A. and M.S. in geology from Brown University, 1962, 1963; Ph.D. in geophysical fluid mechanics from University of Chicago, 1968. Employed at University of Washington 1967-present. Member of AGU, AAAS, Sigma Xi, IAH, etc. Twenty-two scientific papers, e.g., (1) Modeling of sediment transport on continental shelves, (2) Measurements of the turbulent boundary layer under pack ice, (3) Time-dependent mixing in a salt wedge estuary, and (4) Tidal interaction of stratified flow with a sill in Knight Inlet. Four papers in JGR, e.g., (1) Stability of a sand bed subjected to a shear flow of low Froude number, (2) Spatially averaged flow over a wavy surface, and (3) Turbulence measurements in the boundary layer over a sand wave field. Recent honors: Senior Queen's Fellowship in Marine Sciences (Australia); Service in AGU: past associate editor of JGR.

Planetary: President-Elect



Lawrence A. Soderblom. Currently chief of the Branch of Astrogeologic Studies of the United States Geological Survey. Raised in northern New Mexico, Larry attended New Mexico Institute of Mining and Technology, receiving bachelor's degrees in both geology and physics. He then entered Caltech and received a Ph.D. in planetary science and geophysics. Since joining the Branch of Astrogeologic Studies in 1970, Larry has been engaged in a broad spectrum of planetary research tasks, including theoretical modeling of planetary surface processes, telescopic instrument development and observations, determination of the global time scales and evolutionary sequences for the crusts of the terrestrial planets, establishing an advanced computer-image-processing facility geared toward planetary and geologic applications, and making global maps of surface materials on the terrestrial planets based on various remote sensing data acquired by ground-based and spacecraft systems. Larry has participated in several of NASA's unmanned space exploration missions, including Mariner 6, 7, and 9 and the Viking mission to Mars. Currently he is the deputy team leader for the Voyager Imaging Science Experiment that was responsible for the spectacularly successful encounters with Jupiter, including discovery of active volcanoes on Io.



David W. Strangway. A member of AGU since 1980, he is currently vice president and provost of the University of Toronto. He obtained his B.A., M.A., and Ph.D. in 1956, 1958, and 1960, respectively, from the University of Toronto. His work was on the magnetic properties of Precambrian rocks. He spent the summers from 1952 to 1958 working for mining and petroleum companies in exploration geophysics. The year 1959/60 was spent as chief geophysicist for Ventures Ltd. and 1960/61 as a research geophysicist for the Bear Creek Mining Company (Kennebec Copper Corporation). He has been on the faculty of the University of Colorado (geology, 1961-1964), MIT (geophysics, 1965-1968), and University of Toronto (physics, 1968-present, and geology, 1972-present) as well as a visiting professor at the University of Houston (1971-1973). From 1970-1973 he was at the Manned Spacecraft Center in Houston, Texas, where he headed up the geophysics branch and, later, the Planetary and Earth Sciences Division. He served for a short period as the director of the Lunar Science Institute and was the first chairman of the Lunar Science Council of the Universities Space Research Associates. He has served on a variety of committees dealing with lunar and planetary science and on a number of visiting committees, including one to the Geological Survey of Canada.

He has been awarded the NASA medal for Exceptional Scientific Achievement and the SEG Virgil Kauffman gold medal; was elected to the Royal Society of Canada in 1974; and is an honorary member of the Canadian Society of Exploration Geophysicists. He has served on the editorial boards of a number of journals and has been president of the Geological Association of Canada (1978/79) and chairman of the Canadian Geophysical Union (1977/78) and the Ontario Geoscience Research Fund. He has taken an active involvement in the affairs of the American Geophysical Union, the Society of Exploration Geophysicists, and the Canadian Exploration Geophysicists (KEGS) and is currently the secretary of AGU's Planetary Section.

He has authored or coauthored one book and over 100 papers dealing with magnetic and electrical methods as applied to geological problems. These range from studies of lunar samples and meteorites to planetary evolution, exploration geophysics, crustal sounding, and methods for waste disposal.

Planetary: Secretary



Thomas B. McCord. Age 42; a member of the American Geophysical Union since 1965. He was elected a fellow of AGU in 1975. He is professor of planetary sciences at the University of Hawaii and head of the Planetary Geosciences Division of the Hawaii Institute of Geophysics. He is also senior research scientist of the Massachusetts Institute of Technology. His areas of scientific interests include the structure and composition of planetary surfaces, including the earth, using remote sensing techniques. He holds a B.A. in physics (1964) from Penn State University, M.S. in geology (1965) and Ph.D. in planetary sciences and astronomy from the California Institute of Technology (1968). McCord was a professor of planetary physics in the Department of Earth and Planetary Science at MIT from 1968 to 1978, when he resigned. He was chairman of the Division of Planetary Science of the American Astronomical Society, 1980, and he is now past chairman. He is a fellow of the AAAS and is a member of a wide variety of professional scientific and engineering societies. He is and has been a member of many government and NAS advising committees and maintains an interest in national science policy and the health of research capability in the physical sciences. He has published over 150 scientific articles, including 10 in the past year. He acts as a part-time science correspondent for a local TV station and cohosts a weekly radio show designed to communicate the excitement and knowledge associated with research.



Joseph Veverka. Age 40; a member of the AGU since 1978. He is an associate professor of astronomy at Cornell, a member of the university's Laboratory for Planetary Studies, and the director of the Spacecraft Planetary Imaging Facility. His areas of scientific interest include planetary surfaces and atmospheres, photometry, and the small bodies of our solar system. He holds B.Sc. (1984) and M.Sc. (1985) degrees from Queen's University (Kingston), and M.A. (1970) and Ph.D. (1970) degrees from Harvard. He is the chairman of NASA's Comet Science Working Group, concerned with the exploration of Halley's comet on its return in 1986, and a member of other space science advisory groups. In addition to the AGU he belongs to the American Astronomical Society, the Royal Astronomical Society of Canada, the International Astronomical Union, and the Meteorological Society. He is a member of the Voyager and Galileo Imaging Science teams and has previously participated as an imaging science investigator in the Mariner 9 and Viking missions to Mars. In 1979 he was awarded NASA's Medal for Exceptional Scientific Achievement for his investigations of the moons of Mars. He is the author or coauthor of more than a hundred scientific papers. Veverka currently serves on the editorial board of *Icarus* and is an associate editor of *JGR* (Red).

Selmsology: President-Elect



Michael A. Chinnery. Joined AGU 1961. Age 47. Current position: leader, Applied Selmsology Group, Lincoln Laboratory, MIT. Research interests: selmsology, seismic discrimination, seismic data management systems, seismic risk, New England earthquakes, earthquake mechanism, fault mechanics, polar motion, space geodesy, geodynamics. Degrees: B.A. (Cambridge, 1957), M.A. (Toronto, 1959), M.A. (Cambridge, 1961), Ph.D. (Toronto, 1962), D.Sc. (Cambridge, 1977). Employment: Dep. of Geophysics, University of B.C. (assistant professor, 1962-65); Dep. of Earth and Planet Sci., MIT (research associate, 1965-68); Dep. of Geol. Sci., Brown University (associate professor, professor, 1968-73); Lincoln Laboratory, MIT (1973-present). Memberships: Selmsological Society of America; Eastern Section, Selmsological Society of America (chairman, 1973-75); Executive Committee, 1975-77; Royal Astronomical Society (Fellow); and others. NASA: Earth Dynamics Advisory Subcommittee (chairman, 1977-78); Geology/Geodynamics Advisory Subcommittee (chairman, 1978-81); Space and Terrestrial Applications Advisory Committee (member, 1978-81). NAS/NRC: GRB/GSC Study on Geophysical Data Policy (chairman, 1979-present); member of various panels and working groups. IUGG/IUGS: working group to formulate postgeodynamics program, 1978. ICL: coordinating committee on data centers and data exchange (chairman, 1981-present). ICSU: panel on world data centers (solid earth representative, 1981-present). Publications: 38 (three in AGU journals), plus numerous abstracts, reviews, and reports. Includes early work in fault mechanics, stress drop in earthquakes, seismic risk in eastern U.S., saturation of magnitude scale, Secretary, AGU Tectonophysics section, 1968-70. Secretary, AGU Selmsology section, 1980-82. Program chairman, Tectonophysics, 1969 and 1970 AGU Spring Meetings. Associate editor, *JGR*, 1969-72. Associate editor, *GRL*, 1974-76. AGU Committee on Education and Human Resources (member, 1978-present).



Lynn R. Sykes. A member of AGU since 1961, he is 43 years of age. Sykes is currently Higgins Professor of Geological Sciences at Columbia University and head of the Selmsology Group at Lamont-Doherty

Geological Observatory. He received his B.S. and M.S. at the Massachusetts Institute of Technology in 1960 and his Ph.D. from Columbia University in 1965. He was a research assistant (1961-64) and research associate in selmsology (1964-66) at Lamont-Doherty Geological Observatory. Last employed in the Earth Sciences Laboratories, Environmental Sciences Services Administration of the Department of Commerce and adjunct assistant professor of geology at Columbia University from 1966 to 1968. He is a member of the U.S. National Academy of Sciences, The American Academy of Arts and Sciences, and is a fellow of AGU, AAAS, Geological Society of America, and the Royal Astronomical Society. He has published 73 articles, a total of 30 in AGU journals. The most important recent articles are 1978, "Earthquakes, faults, and nuclear power plants in southern New York-northern New Jersey," and 1978, "Intraplate seismicity, reactivation of preexisting zones of weakness, alkaline magmatism, and other tectonic postdating continental separation," 1980, "Rupture zones of great earthquakes, Alaska-Alutian arc, 1784-1980," and 1981, "Repeal times of great earthquakes along simple plate boundaries." His 1967-8 & 9 papers are his three most important contributions (1967, "Mechanism of earthquakes and nature of faulting on the midoceanic ridges," *J. Geophys. Res.*, 72; 1968, "Selmsology and the new global tectonics," with B. L. Isacks and J. Oliver, *J. Geophys. Res.*, 73, 1969, Tectonics of the Caribbean and Middle America regions from focal mechanisms and selmsically," with P. Molnar, *Bull. Geol. Soc. Am.*). He was a recipient of AGU Macelwane and Bucher awards and is a Sloan Fellow. He has served as president of the Section of Tectonics (1972-74), as an associate editor of *JGR*, and on the Publications Committee. His present areas of interest include earthquake prediction and the tectonics of Alaska, the Caribbean, and the eastern United States.

Selmsology: Secretary



Thomas H. Jordan. Joined AGU in 1969. He is 32 years old and currently an associate professor of geophysics at the Scripps Institution of Oceanography, University of California, San Diego. Jordan's primary research interests are in the fields of selmsology and tectonics; much of his work has been aimed at elucidating dynamical processes within the earth by the selmsological study of Earth structure. He received his B.S. (1969) and Ph.D. (1972) degrees from the California Institute of Technology and was on the faculty of Princeton University for 3 years before moving to Scripps in 1975. He has authored 40 scientific publications (including 14 in AGU journals) and was recently awarded an Alfred P. Sloan Fellowship. He is a member of the AGU Meetings Committee and an associate editor of *JGR*. His recent publications include: Structural geology of the Earth's interior, *Proc. Natl. Acad. Sci. USA*, 76, 4162-4200, 1979; The deep structure of the continents, *Sci. Am.*, 240, 92-107, 1979; A procedure for estimating latitude variations from low-frequency eigen-spectra data, *Geophys. J. R. Astron. Soc.*, 52, 441-445, 1978; and Lithospheric slab penetration into the lower mantle beneath the Sea of Okhotsk, *J. Geophys.*, 43, 473-486, 1977.



Robert B. Smith. A member of AGU since 1967, he is 42 years old. He is currently professor of geophysics and director of selmsograph stations, Department of Geology and Geophysics, University of Utah. His areas of scientific interest are theory and methods in evaluation of earthquake hazards and feasibility of earthquake prediction in continental zones of intraplate seismicity, long-time seismic profiling using refraction and wide-angle reflection techniques for crustal structure, and kinematics and quantitative models of intraplate tectonics in continental regions, including seismic evaluation of mechanics of mountain building and emplacement of magmas. He received his B.S. and M.S. from Utah State University in 1960 and 1965, respectively, and his Ph.D. in 1967 from the University of Utah. He was geodesics and geophysics officer in the U.S. Air Force, 1961-64; U.S. exchange scientist

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